Standard Operating Procedure

Chain-of-Custody Requirements

Montana Department of Environmental Quality
Water Quality Planning Bureau

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1. Chain of Custody (COC)

Chain-of-custody (COC) is the protocol that provides a record of the persons having control of, and access to, a sample. The COC begins when the sample is collected and ends when the sample is disposed of. If analytical results are questioned, either informally or in legal proceedings, the COC documentation is the record that proves the sample was collected and handled according to a controlled process and that the sample can be directly linked to the results.

There are two general types of COC: routine and legal/evidentiary. The type of custody needed depends on the project specific requirements or data quality objectives, and should be specified in project planning documents such as quality assurance project plans (QAPPs).

1.1. Routine Chain-of-Custody

A routine COC is designed to verify the integrity of a sample by providing records that trace the sample from collection and storage to handling, shipment, and analysis. This information combined with field records identifying sampling personnel; equipment; field conditions; and collection, storage, and transfer techniques are what make up the COC.

A routine COC provides sufficient documentation for demonstrating a controlled process of sample handling and transportation in the event data is questioned informally. An example of data being informally questioned would be public comment received in review of (non-regulatory) bureau decisions (e.g., 303-d list public comment period). A member of the public may question an analytical result that leads to a waterbody being listed (or delisted) and request that the bureau prove that the result came from the waterbody in question. Questioning of data in this manner is essentially asking for a demonstration of professional practices and can be satisfied by citing the COC procedure and, if necessary, producing a copy of the COC itself.

1.2. Legal/Evidentiary Chain-of-Custody

Legal COC includes the sample general requirements as routine COC, but it is specifically designed to provide a record that may be produced as evidence in legal proceedings. As such, it has special requirements, which differ from state to state and from project to project, including the use of specific types of sample collection labels and forms, additional sample security requirements (e.g., custody seals), and internal custody records within laboratories. A legal COC can be significantly more costly to produce than a routine COC; and is not necessary for most projects.

2. Sample Custody

A sample is considered to be in a person's custody when:

1. It is in the person's physical possession
2. It is in the person's view; after being in physical possession
3. The person has placed it in secure storage, and access to the sample is controlled.

As few people as possible should handle a sample until final custody is relinquished to the analytical laboratory.

2.1. Beginning custody

Sample custody begins when the sample is collected. When the sample is collected, it has been created and can be physically possessed. This is where sample custody begins and it should typically be recorded on custody documentation at this time.

For non-regulatory (e.g., NPS ambient monitoring) programs that use a routine COC, a little more leeway is allowed. Samples may be recorded at the time they are preserved and placed in the transport cooler. Often, this will not occur at the sampling site if the site is remotely located. In these cases, the sample transport cooler remains at a vehicle and samples are preserved and iced upon return to the vehicle. At this point, samples must be recorded on the COC. All samples in the transport cooler must be recorded on the COC, providing a running total of samples in possession. The COC will remain with the transport cooler in a sealed zip lock bag until samples are relinquished to the laboratory.

For legal chain-of-custodies, samples must be recorded at the time of collection. This often involves a witness to the sample collection recording the event (e.g., video or photographs) and filling out the COC as samples are collected and preserved at the site.

2.2. Custody Transfer

Transfer of custody occurs when sample possession is relinquished from one person to another. When relinquishing custody of samples, the person relinquishing signs a box at the bottom of the COC labeled "Relinquished by:" and includes the date and time samples were released from custody.

The person accepting the sample signs the corresponding box labeled "Received by:" and records the date and time (or verifies the relinquished date if only one box is provided for recording it). The date and time a COC is relinquished must match the date and time it is received.

An exception to custody transfer is the releasing of custody to a secure facility. Examples of this are samples that are shipped through private couriers (e.g., FedEx) or when samples are dropped off at a secure (locked) facility and picked up by another person at a later time or date. This is acceptable for routine COC but additional steps are necessary to maintain defensibility in legal/evidentiary COC (see Section 2.3.1).

2.3. Completing Custody

Routine COC typically closes upon final receipt by the laboratory performing the requested analyses. When the analytical report is generated, the original COC (or a certified, exact copy of the original COC) is attached, resulting in the final analytical report.

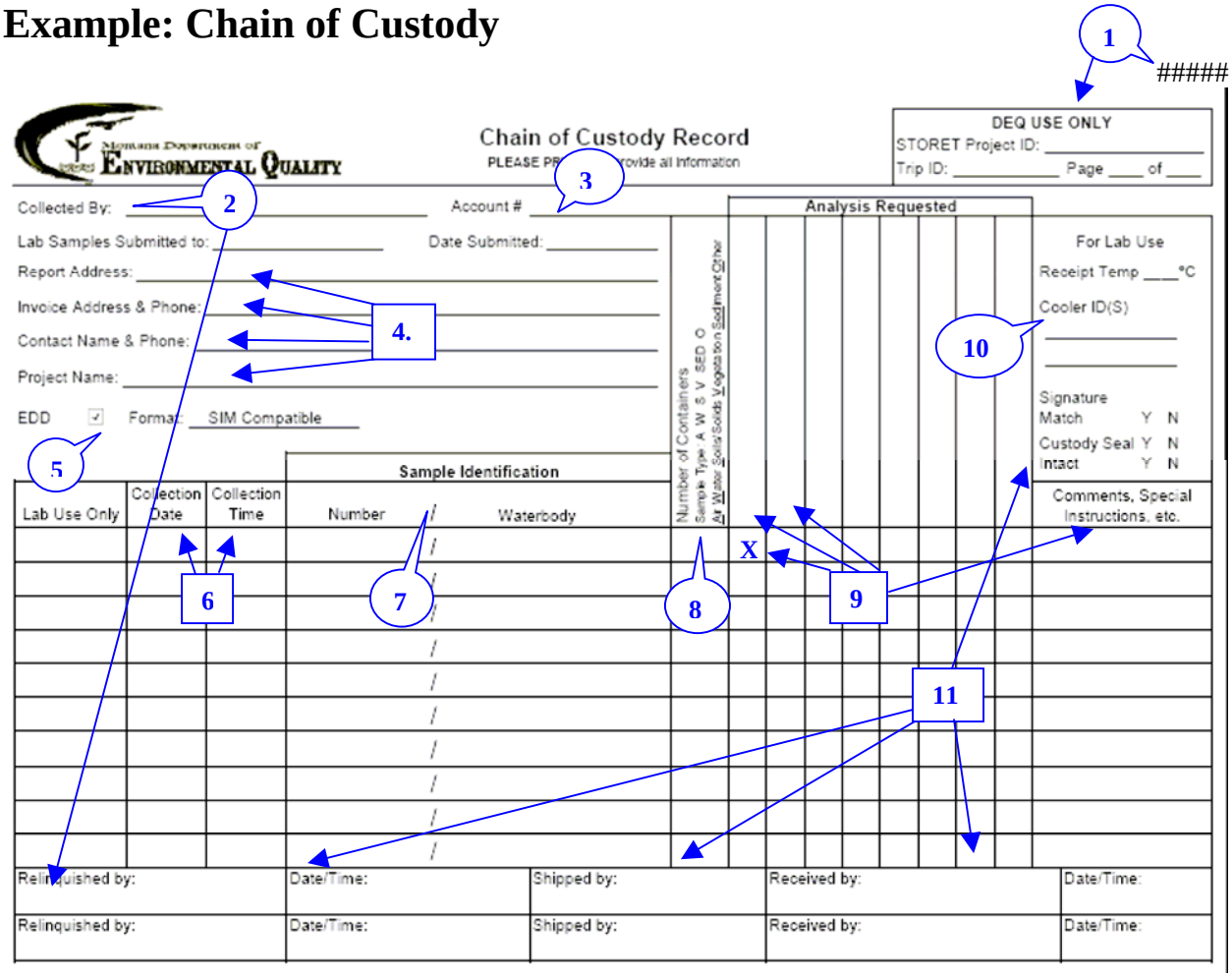
A legal/evidentiary COC follows the same path as a routine COC. However, any supporting documentation (2.3.1 below) is included. Legal/evidentiary COC may make a distinction between field sample custody and laboratory custody, with separate documentation for each type of possession. Nevertheless, when two sets of documentation are used the same custody rules apply. The signature and date/time of the last person receiving samples on the sampling COC must match the signature and date/time on the laboratory's internal COC.

A laboratory internal COC will document all person's within the laboratory that handle samples, subsamples, and sample extracts within the laboratory until the sample is consumed by the analysis or disposed of. The final analytical report will include all sample custody documentation in what's called "cradle to grave" custody.

2.3.1. Custody seals, bills of lading, and shipping receipts

In legal/evidentiary COC, custody seals are often used to demonstrate sample integrity when samples are transported or dropped at secure facilities. Custody seals are simple tape seals that are signed, dated and placed over the caps of the sample bottle, lid of transport cooler, or both prior to shipping the sample. At the laboratory, the custody seal is broken on the transport cooler by the sample custodian, who inspects samples for breakage, integrity, and temperature. This also initiates the laboratory's internal COC, which is signed and dated by the custodian. Custody seals on sample bottles are broken by the analyst at the time of sample preparation or analysis and the date and time recorded on internal laboratory custody papers.

Example: Chain of Custody



Notes:

1. **COC number -** Serialized tracking number of document. Some programs have unique identification schemes. Chain of custodies with unique requirements must have specific instructions for completion. For example, DEQ's STORET COC instructions are in the Field Procedures Manual, SOP WQPBWQM-020.
2. **Collected by –** Person or persons who collected the samples. Also, this person (or one of the persons listed) should match the *first* signature in the "relinquished by:" box in the lower left hand corner.
3. **Account Number** - Use to insure correct billing. Some COC's use "Workorder #" for accounting purposes.
4. **Reporting and invoicing information** – The laboratory must know where, and to whom reports, invoices and questions are directed. Most projects will have project contact information that differs from the sampling crew.
5. **Reporting Requirements** – Special reporting instruction for the laboratory.

6. **Collection Date & Time** – Date and time of sampling. Use military time unless AM/PM column is provided.
7. **Sample Identification** – Sample identification may be numeric, textual, or both. Sample identification schemes must be described in the document control section of QAPPs or program specific document control SOPs.
8. **Number of Containers & Sample Type** – This describes the sampling bottles that comprise a single sample. For example, there may be three bottles with different preservative comprising one sample. Some COCs will have separate columns for these two items.
9. **Analysis Requested** – The analyses required (for each bottle submitted) is shown in the vertical column. Make an "X" in the corresponding box below for the sample it applies to. Any special instructions for the sample can be included on the right.
10. **Lab Receipt Temperature and # coolers per COC** – COC documentation prepared by the lab. Establishes that the lab received all the coolers that were sent and that proper temperature was maintained.
11. **Sample Custody & Laboratory Verification** – Signatures of all persons that have handled the samples and the dates that they received or relinquished the samples constitute the chain-of-custody. The laboratory will verify if custody was maintained by matching signatures and dates.

References:

Montana Department of Environmental Quality (MDEQ), 2005 – Field Procedures Manual for Water Quality Assessment Monitoring. SOP WQPBWQM-020

Montana Department of Environmental Quality (MDEQ), June, 2005 – Quality Assurance Project Plan, Sampling and Water Quality Assessment of Stream and Rivers in Montana, 2005 WQPBQAP-02.

Montana Department of Environmental Quality (MDEQ), April 1995 – Quality Assurance Project Plan for Montana Water Monitoring Program, Section 14. Sample Handling and Custody Requirements.

United States Navy (USN), 2005 – Chain of Custody, Navy Environmental Sampling and Testing Programs.